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Article

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ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

The consequence of earnings management through discretionary accruals on the value relevance in Saudi Arabia

Basiem Al-Shattarat^{1*}

Abstract: This study explores the relationship between company earnings management and the relative value relevance of book value and earnings. The differential effect on the value relevance of earnings management (EM) from 2014 to 2018 for all firms listed on the Saudi Stock Exchange (Tadawul) is investigated by short-term versus long-term discretionary accruals. For firms whose EM is considered as an indication of its discretionary accruals, it is anticipated that earnings' value relevance would be lower than firms that do not consider EM. The results show that EM discretionary accruals influence the value relevance of book value and earnings for the long-term compared to the short-term. The study's finding is expected to shed light on applying the quality of firms' financial reporting in protecting stakeholders' interests by providing them with credible information free from earnings manipulations.

Subjects: Finance; Corporate Finance; Accounting; Corporate Governance

Keywords: value relevance; earnings management; book value; short-term and long-term discretionary accruals

1. Introduction

Financial conceptual reporting framework stresses the importance of relevant financial information because it plays an important capital market's efficient functioning (IASB, 2010). Due to this fact, value relevance has become the most crucial attribute of accounting information quality for

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Basiem Al-Shattarat holds a PhD in Accounting from the University of Plymouth (2017) and a master's degree in Accounting and Financial Management with distinction in 2012 from Coventry University. He is now an Assistant Professor at Prince Sultan University, KSA. Al-Shattarat's work has been published in the *International Review of Financial Analysis*. He is also a reviewer for the *Journal of Applied Accounting Research* and *International Review of Financial Analysis*. His research interests mainly include financial reporting, particularly earnings quality, earnings management (accrual earnings management, real earnings management), corporate governance, financial market analysis, and narrative disclosures.

PUBLIC INTEREST STATEMENT

This study examines the association between EM via discretionary accruals based on short term and long term of both book value and earnings from 2014 to 2018 for all firms that listed on the Saudi Stock Exchange (Tadawul). The study findings reveal that Saudi Arabia's EM practices via long term discretionary accruals significantly impact company book value and value relevance of earnings when compared to discretionary accruals based short-term. The study's outcome is anticipated to shed light on applying the quality of firms' financial reporting in protecting stakeholders' interests by providing them with reliable information that is free from earnings management manipulations.

regulatory bodies, investors, and other users of financial statements (Barth et al., 2001). Investors are the primary users of financial statements and deem high-quality accounting information as the utmost desirable. Consequently, studies focus on assessing accounting information quality through qualitative characteristics of financial statement information such as relevance and faithful representation (Kothari, 2001). Value relevance can be linked with the reporting of earnings information, where EM is feasible. According to Dechow and Skinner (2000), managers can use EM activities to manipulate earnings and conceal real company performance and hide essential financial information.

The research (Yoon et al., 2006) shows that fraudulent reporting practices applied by corporate giants like WorldCom, Xerox, and Enron essentially damaged the world economy, contributing to the loss of confidence by financial statement users in the financial reporting process. At the end of 2001 and the beginning of 2002, WorldCom and Enron have filed for bankruptcy. The US Securities and Exchange Commission (SEC) conducted the investigation of these companies and identified that earnings management practices had caused their bankruptcies. These cases showed the importance of focusing on earnings management activities.

This study suggests that the relevance of accounting information to the market may be affected by its reliability in terms of establishing firm value. The exposure of the earnings figure to manipulation may lower its reliability and feasibility in the valuation process. It occurs because of the accrual element of earnings, partly susceptible to managerial discretion. Generally Accepted Accounting Principles (GAAP) offer some freedom, enabling management to derive benefits from this flexibility. The increased prospect of exploitation occurs due to management's incentives to handle the accrual element of earnings to achieve the particular earnings goals (Dechow et al., 1996; Holland & Ramsay, 2003; Teoh et al., 1998).

Long-term accruals increase also lead to an increase of turn period (Cotter, 1996; Guay & Sidhu, 2001). Such change exemplifies the role of accruals based short- and long-term in addressing both problems matching as well as timing, giving options for discretionary accruals. As stated in (Dechow et al., 1995; DeFond and Jimbalvo, 1994; Dechow and Sloan, 1991; Jones, 1991; Healy, 1985; DeAngelo, 1986), general discretionary accruals are short-term. Consequently, there is little examination of the manipulation of long-term discretionary accruals (LGDA). This study examines the association between the value relevance of both book value and earnings through EM. Specifically, the study focuses on discretionary accruals for both short-term and long-term and its varying effect on earnings value relevance and book value. The impact on discretionary accruals' value relevance for the long-term is expected to be significant because of its high susceptibility to EM.

Consequently, the current study seeks to make the following contributions to the existing literature. First, it expands existing empirical research on EM and value relevance of earnings (Adetunji, 2016; Christensen et al., 1999; Feltham & Pae, 2000; Habib, 2004; Marquardt & Wiedman, 2004; Mostafa, 2017; Odoemelam et al., 2019; Ofoegbu & Odoemelam, 2018; Tucker & Zarowin, 2006) by contributing empirical evidence of EM and book value and value relevance of earnings from Saudi Arabia. Second, this study is the first to consider the analysis of the disparity in EM's influence over short- and long-term terms. Existing research data shows an incomplete picture of this relationship. For instance, a recent study on matters of value relevance in Saudi Arabia (Alsalman, 2003; Al Barrak, 2011; Khanagha, 2011) has failed to analyze the relationship between EM and the value relevance of earnings except for Oraby's (2017) research, which explores the influence of EM on the accounting information relevancy. Still, the researcher did not reflect the variation in the effects of EM over the short- and long-term. Consequently, this study innovates the gap in the accounting literature by associating EM via discretionary accruals based on short- and long-term effects on Saudi Arabia.

The Saudi Arabia context presents a valuable prospect for studying EM's effect on earnings' informativeness in an almost newly founded and rapidly developing capital market.¹ The link

between EM and value relevance of earnings in the Saudi Arabia setting appeals to the succeeding motives. First, Saudi Arabia is an Islam monarchy and the biggest country in the Arabian Peninsula. Saudi Arabia's accounting and auditing have unique characteristics because Islam's traditions shape the economic, social, and political institutions. Varying legal, cultural, historical, and regulatory factors have a differential impact on a country's EM practices and affect product and factor market composition (Kim et al., 2012). Besides, EM mechanisms and their effectiveness vary with these activities' practice periods over the short- or long- term (Whelan and McNamara, 2004).

Second, Saudi Arabia has a distinct institutional context compared to the UK and the US. The association between EM and the accounting information value relevance was examined initially then tested in both the UK and the US. Unlike the UK and the US, Saudi Arabia is a code-low origin country with a growing and emerging economy and an accounting system with significant politicization (Ball et al., 2000). The UK and the US developed markets possess robust corporate governance frameworks, high capital market value, and weak impact of tax regime on financial accounting. These environmental variations may drive to differing results between nations. Lastly, corporate governance strategies and their impact may differ based on productive enterprise and industry sectors (Maher & Andersson, 1999).

The study findings confirm that EM has an impact on value relevance earnings. More importantly, the study reveals that Saudi Arabia's EM practices via LGDA significantly impact company book value and value relevance of earnings when compared to discretionary accruals based short-term. The conclusions also align with the propensity score matching method. The aim of financial reporting is to offer accounting information related to the object, which provides support to creditors and shareholders in the process of making the necessary investment decisions (IASB, 2010). Therefore, investors should use accounting information to make investment decisions by choosing between the alternative methods of using limited resources by offering relevant and faithful information. For this reason, the feasibility of accounting information should be estimated by value relevance from the point of view of investors. Investors should also gain access to financial reporting through the investigation of the qualitative features of information derived from financial reports, i.e., relevance and faithful representation (reliability) (Barth et al., 2001). However, the study's outcome is anticipated to shed light on applying the quality of firms' financial reporting in protecting stakeholders' interests through reliable information free managerial manipulations.

The rest of the study is structured as follows: section two focuses on the background. Section three and four focus on theoretical and empirical literature review and presentation of the primary hypothesis. In section five discusses the data and study methodology. Section six discusses the results, and section seven is the study conclusion.

2. Background

A value relevance study represents the assessment of the connection between capital market values and accounting information. The theoretical basis for value relevance studies using a measurement technique is the combination of financial reporting arguments (accounting theory) and contextual accounting and the valuation theory, providing the researcher with an opportunity to anticipate the future behaviour of accounting and other relevant information market value. According to Holthausen and Watts (2001), standard-setting and two theories of accounting are applied by value relevance studies to make conclusions: (i) "inputs-to equity-valuation" theory and (ii) "direct valuation." Direct valuation theory assumes that a connection exists between stock market value and accounting earnings. Direct valuation theory supposes the purpose of accounting earnings to either evaluate or be integrated with the equity market value levels or changes. Within this conceptual framework, the key users are individuals, making decisions that affect firms' value, particularly the decision-making process of capital market participants (Beaver, 2002). Riahi Belkaoui (2000) analyzed the role of relevance in accounting information, showing that accounting information is relevant if it may affect decision-makers' decisions.

Market value relevance implies the existence of a statistical connection between prices or returns and financial information and the accurate definition of market prices by the accounting-based measures, considering the efficient market hypothesis that available information is mirrored by pricing (Francis & Schipper, 1999, p. 326). However, the market efficiency of the Saudi markets was tested by several recent studies (Asiri & Alzeera, 2013; Khoj & Akeel, 2020). Both papers tested the efficiency of the Saudi market and proved its efficiency on the weak form.

The Framework for the Preparation and Presentation of Financial Statements (IASC, 1989) explains the significance of value relevance of accounting information, which corresponds to the definition of value relevance. Relevant information is defined as the information that affects users' economic decisions by assessing past, present, and future situations. Investors perceive relevant information as the information that results in equity investment decisions. Francis and Schipper (1999) indicate that this definition of the market value relevance represents one possible explanation of the value relevance concept. Also, the difference between the value relevance of accounting information and the quality of accounting information should be considered. Seven accounting- and market-based features of accounting quality have been identified by Francis et al. (2004), who also revealed that value relevance is recognized as one—though not single—of the significant features of accounting quality. Value relevance is also considered to play a more important role in accounting quality as compared to timeliness or conservatism. This statement coincides with Barth et al.'s (2001) finding, which states that the value relevance of accounting information is critical for investors. However, it offers a better understanding of accounting problems to standard-setters and other user groups. This information is primarily important for the transition countries, which are currently or have been designing their accounting regulations.

The assessment of value relevance may be carried out from two key points of view: a measurement perspective and a signalling perspective. The measurement perspective evaluates the precise connection between accounting measures and market indicators of the company's value (Ali & Hwang, 2000). The signalling perspective investigates the possible response to the provision of accounting information. This methodology was applied by Amir et al. (1993) to research the value relevance of US generally accepted accounting principles (GAAP) and non-US GAAP.

3. Theoretical literature review

The conceptual framework offered an integral relationship between reliability and relevance. The reliability of accounting information plays a crucial role for market operators. The value-relevant information is both reliable and relevant in relation to the definition introduced in the conceptual framework (Barth et al., 2001). Thus, the lack of value-relevance may imply absent reliability and/or relevance. Whereas the conceptual framework predetermines the relevance of accounting information to the decision-makers, low reliability is an indicator of low-value relevance.

Book value and earnings possess value-relevance (excluding either one or another) and may potentially wrongly clarify the valuation model (Barth et al., 1998; Collins et al., 1999; Ohlson, 1995). Since the late 1950s, the research on modifications in value relevance of these measures identified the reduction in the value relevance of earnings, which have been displaced by the high value-relevance of book value. In general, the reduction in the integrated value-relevance of these two measures has not been revealed (Collins et al., 1997; Francis & Schipper, 1999).

Earnings reliability seems controversial due to the motivation to manage earnings (Dechow & Skinner, 2000; Healy & Wahlen, 1999). The reliability of earnings is decreased when an organization is involved in earnings management because the earnings figure does not demonstrate the fair and just performance of a company. The unreliability of information cannot be utilized to assess the company. Therefore, the reduction of value-relevance of earnings may be caused by earnings management. The loss of reliability by the earnings measure may force the market to use book value as the alternate value measure, thus contributing to book value's increased value-relevance.

The accrual element of earnings may essentially distract from the reliability of earnings. The use of accruals by management is implemented to regulate cash flows with the aim of providing a plausible signal to the market. At the same time, the value relevance of earnings should stay unchanged. Nevertheless, the use of accruals by the management in a conjunctural way may destroy the reliability of the earnings figure, whose value relevance is low. Opportunistic behaviour may lead to discretionary accruals and a reduction in the perceived reliability of earnings. Since management is able to operate earnings due to the discretionary element of accruals, they determine earnings management (Bartov et al., 2000; Dechow et al., 1995; DeFond & Jiambalvo, 1994; Jones, 1991; Teoh et al., 1998).

4. Empirical literature review and hypotheses development

The market's perception of the reliability of that information determines accounting information's relevance in ascertaining the firm's value. EM, as indicated by vast discretionary accruals levels, presents an earnings reliability indicator. Current literature reveals mixed evidence on the association between earnings, the book value, and company share price. Also, EM reduces the earnings value relevance and book value, which is considered essential in describing its share prices (Subekti, 2010). This outcome implies that investors may be using alternative financial information to re-evaluate the company's reported accounting information (Mirza et al., 2020) before adjusting investment decisions on stock prices (Balsam et al., 2002). Conversely, some findings point to the lack of accounting information's significant association between EM and value relevance (Modi & Pathak, 2014). In addition, Shan (2015) shows that for firms engaged in earnings management, the negative effect of value relevance is greater than for firms that have not engaged in earnings management.

As stated in (Bowman and Navissi, 2003; Bartov et al., 2000; Teoh et al., 1998; Dechow et al., 1995), the discretionary component of accruals serves as an EM indicator and provides the management with options to manipulate earnings. The utilization of short-term discretionary accruals (SHDA) and long-term discretionary accruals (LGDA) improve market information, giving more value relevance (Chia et al., 1997). However, the return period increases with long-term accruals' rising impact (Cotter, 1996; Guay & Sidhu, 2001). As SHDA and LGDA can alleviate variable matching and timing problems, differentiating these elements is an essential factor in examining discretionary accruals. Nevertheless, the EM literature points out that discretionary accruals' current processes fail to address this need.

Beneish and Vargus (2002) argue that investors fail to detect income-increasing accruals in the short-term because income-increasing accruals are of immense quality, resulting in a favourable market influence on EM. Whelan and McNamara's (2004) findings confirm that EM impacts value relevance. Furthermore, through LGDA, EM dramatically affects the book value and earnings value relevance compared to EM via SHDA. According to Rachmawati (2019), accrual and real EM's positive impact is visible on value relevance.

The literature also indicates that companies experiencing EM utilizing income-increasing accruals reverse them in succeeding years, frustrating investors leading to lower returns on stock (DuCharme et al., 2001). In contrast, Ching et al. (2006) argue that EM, such as seasoned equity, is estimated at a specific event date. Therefore, this method does not affect subsequent stock returns in the long-term and provides managers with little incentive to engage in EM when there is no significant company event (Chou et al., 2009). This study utilizes Whelan and McNamara's (2004) model that breaks down total accruals into various elements and investigates EM's differential impact through SHDA and EM via LGDA on the book value and earnings value relevance. The effect of value relevance is anticipated to increase LGDA since LGDA is high susceptible to EM. In addition, Callao et al. (2016) analyses and contrasts the importance significance of accounting figures in firms that have high discretionary accruals and therefore potential behaviours of earnings management. They demonstrate that while the value relevance of earnings is low in firms with high discretionary accrual, book value improves its value importance.

A wealth of research studies focused on EM in Saudi Arabia have favoured the examination of the association between EM and various elements such as audit issues and corporate governance to the link between EM and value relevance issues (Al-Moghawli, 2010; Habbash & Alghamdi, 2015, 2016; Alshetwi, 2016). Habbash and Alghamdi (2015) found out that many Saudi corporates manage earnings “to increase the amount of remuneration, to report a reasonable profit and avoid loss, to obtain a bank loan and to increase share price.” Also, some managers manipulate earnings to prevent potential political costs (Al-Moghawli, 2010). In addition, Habbash and Elghamadi (2016) and Alshetwi (2016) examined Saudi firms’ links between audit quality and EM and argued that EM activities take priority over auditors’ capabilities. Different studies on value relevance in Saudi Arabia did not address the link between EM and value relevance earning (Alsalman, 2003; Al Barrak, 2011; Khanagha, 2011). Consequently, this study is the first to examine the value relevance gaps in Saudi Arabia accounting literature by linking EM through short- and long-term discretionary accruals.

4.1. Hypotheses development

Literature provides evidence about the relationship of EM presented through discretionary accruals and share price (Rangan, 1998; Teoh et al., 1998). For instance, the firm’s share price performance decreased post to issue if the firm has higher discretionary activities before share issues. This impact is not considered in measuring the effect of EM on book value and earnings value relevance. Studying earnings response coefficients provide a pillar for the earnings value relevance. Literature investigates the earnings value relevance via different contexts such as cash flows and accrual earnings (I. Batrancea et al., 2008; L. Batrancea et al., 2009; Collins & Kothari, 1989; Easton & Harris, 1991). However, book value proxy may take a role in predicting future earnings (Ohlson, 1995) or measuring the firm’s liquidation value (Barth et al., 1998). Previously conducted studies about the book value and value relevance of earnings are built on the US or Australian data, strong markets. Employing Saudi data in this study extends the literature and provides new insight into a different environment in emerging markets. The literature expects a positive relationship to be found between value relevance and share price. This leads to this study first hypothesis as follow:

H1. Book value and earnings are value relevant.

Components of accruals have differential reversing characteristics serving as an advantage to the management. The relatively quick change of short-term accruals gives managers little chance of manipulation. However, long-term accruals’ behaviour makes them susceptible to manipulation when the market does not expect a reversal. The activity may remain undisclosed for which may endure unobserved for numerous accounting periods. Besides, the utilization of LGDA may appear to the market as a unique EM tool compared to SHDA. The market may also view the management use of LGDA as an attempt to deceive the market because the accrual provides managers with opportunities to hide accrual manipulations.

In some cases, the management use of SHDA may appear as the managements’ way of sending signals to the market. In such instances, LGDA may decrease earnings reliability because SHDA indicates more likelihood of information manipulation. Consequently, LGDA in the management will increase the earnings value relevance and book value compared to SHDA.

H2. Earnings management in Saudi Arabia through LGDA has a significant effect on the firm’s book value and the value relevance of earnings compared to SHDA.

5. Research design

5.1. Data and sample

The study extracts the financial data of 132 firms listed in the Saudi stock exchange (Tadawul)² for the period that starts in 2014 and ends in 2018. Following previous research (Al-Shattarat et al., 2018; Zang, 2012), this study excludes firms that operate in regulated industries and financial institutions because the mentioned industries are highly regulated and differ in the applied accounting framework (IFRS- based accounting standards). Therefore, after excluding observations without sufficient data to calculate all EM proxy measures, missing data, control variables, and sectors with less than ten firms, the primary sample reduced from 660 observations to 570 observations to test the study hypotheses. Sample collection procedures are summarized in Table 1.

5.2. Measure of variables

5.2.1. Measuring the value relevance of earnings

Some literature utilized Ohlson's (1995) model to determine earnings' value relevance (Whelan and McNamara, 2004; Collins et al., 1999). The share price utilized in the regression analysis is the unit share price three months after the company's financial statements issuance. This period enables stakeholders to receive and peruse accounting information for informed decision making. This study examines earnings per share and book value accounting measures.

5.2.2. Measuring discretionary accruals

This study uses the Jones (1991) to determine the normal accruals (Whelan and McNamara, 2004; Zang, 2012). EM practices are calculated using discretionary accruals, represented as the difference between a firm's normal and actual accruals. The equation below denotes the firm's anticipated accruals:

$$\frac{Accr_{i,t}}{TA_{i,t-1}} = \varphi_1 * \left(\frac{1}{TA_{i,t-1}} \right) + \varphi_2 * \left(\frac{\Delta SR_{i,t}}{TA_{i,t-1}} \right) + \varphi_3 * \left(\frac{PPE_{i,t}}{TA_{i,t-1}} \right) + \varepsilon_{i,t}, \quad (1)$$

$Accr_{i,t}$ is the sum of accruals for firm i in year t determined by subtracting earnings before extraordinary items from cash flows of operations; $TA_{i,t-1}$ is the cumulative assets for firm i at end year $t-1$; $\Delta SR_{i,t}$ is the firm's revenues in year t after subtracting revenues in year $t-1$; $PPE_{i,t}$ is the equipment, plant, and property of the firm i in year t ; and $\varepsilon_{i,t}$ is the error term.

The firm's expected accruals are calculated using the estimated coefficients from Equation 1 to find the total discretionary accruals calculated as the difference between estimated and actual accruals.

Table 1.

Sample Construction

Sample Selection Criteria	Number of Firms	Number of Observations
Firm-year observations have sufficient data from <i>Tadawul</i> database from 2014 to 2018 for earnings management	132	660
Less:		
Firms in the financial and utility industries	18	90
The full sample used for testing the hypotheses	114	570

$$DA_{i,t} = \frac{Accr_{i,t}}{TA_{i,t-1}} - \left[i_1 * \left(\frac{1}{TA_{i,t-1}} \right) + i_2 * \left(\frac{\Delta SR_{i,t}}{TA_{i,t-1}} \right) + i_3 * \left(\frac{PPE_{i,t}}{TA_{i,t-1}} \right) \right] \quad (2)$$

Where $DA_{i,t}$ is a discretionary accrual. Drawing from Whelan and McNamara (2004), expected short-term accruals are developed using the Jones (1991) revenue component as follows:

$$\frac{Sh_Accr_{i,t}}{TA_{i,t-1}} = \gamma_1 * \left(\frac{1}{TA_{i,t-1}} \right) + \gamma_2 * \left(\frac{\Delta SR_{i,t}}{TA_{i,t-1}} \right) + \varepsilon_{i,t}, \quad (3)$$

Previous literature has defined short-term accruals ($Sh_Accr_{i,t}$) as follow (Guay & Sidhu, 2001; Pfeiffer & Elgers, 1999):

$$Sh_Accr_{i,t} = \Delta AR_{i,t} + \Delta INV_{i,t} + \Delta OA_{i,t} - \Delta AP_{i,t} - \Delta TP_{i,t} - \Delta OL_{i,t} \quad (3A)$$

The $Sh_Accr_{i,t}$ represents the short-term accruals while $\Delta AR_{i,t}$ is the accounts receivable at the expiry of year t after subtraction of accounts receivable at the end of year $t-1$. The $\Delta INV_{i,t}$ is the inventory at the end of year t less inventory at the end year $t-1$. $\Delta OA_{i,t}$ denotes the current assets at the end of year t after subtracting other company current assets at the end of year $t-1$. The $\Delta AP_{i,t}$ represents the accounts payable at the end of year t after subtraction of accounts payable at the end of year $t-1$. $\Delta TP_{i,t}$ designates the change of tax payable. The term $\Delta OL_{i,t}$ represents the change of current liabilities.

The predicted short-term accruals of the firms are estimated using cross-sectional regression coefficients for each firm-year in Equation 3. As a result, ($SHDA_{i,t}$), which is the discretionary short-term accruals, is the difference between the estimate and the reported short-term accruals as below:

$$SHDA_{i,t} = \frac{Sh_Accr_{i,t}}{TA_{i,t-1}} - \left[g_1 * \left(\frac{1}{TA_{i,t-1}} \right) + g_2 * \left(\frac{\Delta SR_{i,t}}{TA_{i,t-1}} \right) \right] \quad (4)$$

The firm's anticipated long-term accruals estimation is developing as follow:

$$\frac{Lg_Accr_{i,t}}{TA_{i,t-1}} = \eta_1 * \left(\frac{1}{TA_{i,t-1}} \right) + \eta_2 * \left(\frac{PPE_{i,t}}{TA_{i,t-1}} \right) + \eta_3 * \left(\frac{INA_{i,t}}{TA_{i,t-1}} \right) + \eta_4 * \left(\frac{NCP_{i,t}}{TA_{i,t-1}} \right) + \varepsilon_{i,t}, \quad (5)$$

Following Teoh et al. 1998, long-term accruals ($Lg_Accr_{i,t}$) can be calculated as:

$$Lg_Accr_{i,t} = Accr_{i,t} - Sh_Accr_{i,t} \quad (5A)$$

To calculate the discretionary long-term accruals, this study employs the estimated coefficients from Equation 5 and find the difference between theses estimations and the actual long-term accruals as follows:

$$LGDA_{i,t} = \frac{Lg_Accr_{i,t}}{TA_{i,t-1}} - \left[h_1 * \left(\frac{1}{TA_{i,t-1}} \right) + h_2 * \left(\frac{PPE_{i,t}}{TA_{i,t-1}} \right) + h_3 * \left(\frac{INA_{i,t}}{TA_{i,t-1}} \right) + h_4 * \left(\frac{NCP_{i,t}}{TA_{i,t-1}} \right) \right] \quad (6)$$

where $LGDA_{i,t}$ is the long-term discretionary accruals for firm i in years t ; $INA_{i,t}$ is the intangible assets for firm i in year t , $NCP_{i,t}$ is the non-current provisions for firm i in year t .

5.3. Empirical models

In the study, Ohlson's (1995) model is used to measure EM's impact on a company's value relevance of earnings through short-term and long-term accruals (Whelan and McNamara, 2004; Barth et al., 1998; Collins et al., 1999; Ou & Sepe, 2002). The model below is adopted to test the first hypothesis:

$$SP_{i,t} = \alpha_0 + \alpha_1 * ES_{i,t} + \alpha_2 * BV_{i,t} + \tau_{i,t} \quad (7)$$

where $SP_{i,t}$ is the share price for firm i at the end of the third month of year $t+1$; $ES_{i,t}$ is the earnings per share; $BV_{i,t}$ is the book value per share.

Table 2. Descriptive Statistics

Panel A—Full Sample

	SP	ES	BV
Mean	0.785	0.009	0.408
SD	1.575	0.108	0.897
Min	0.004	-0.411	0.008
Max	13.006	0.588	5.393
N	570		

Panel B	No EM Firms			EM Firms		
	SP	ES	BV	SP	ES	BV
Mean	1.056	0.021	0.514	0.514	-0.003	0.302
SD	1.933	0.117	1.003	1.044	0.096	0.515
Min	0.004	-0.277	0.008	0.002	-0.411	0.002
Max	13.006	0.588	5.393	8.491	0.515	4.005
N	172			226		

Panel C	Short-term EM			Long-term EM		
	SP	ES	BV	SP	ES	BV
Mean	1.042	0.021	0.459	0.528	-0.003	0.357
SD	1.868	0.143	0.574	2.113	0.164	0.792
Min	0.004	-0.365	0.008	0.003	-0.411	0.002
Max	13.006	0.588	2.704	11.458	0.581	5.393
N	81			91		

SP is the share price at time $t + 3$ months; ES is the earnings per share; BV is the book value per share.

To examine the second hypothesis, dummy variables are comprised of the model below to measure the value relevance of EM over the short-term and long-term accruals.

$$SP_{i,t} = \emptyset_0 + \emptyset_1 * SHDA_{i,t} + \emptyset_2 * LGDA_{i,t} + \emptyset_3 * ES_{i,t} + \phi_4 * ES_{i,t} * SHDA_{i,t} + \phi_5 * ES_{i,t} * LGDA_{i,t} + \phi_6 * BV_{i,t} + \phi_7 * BV_{i,t} * SHDA_{i,t} + \phi_8 * BV_{i,t} * LGDA_{i,t} + \xi_{i,t} \quad (8)$$

where $SP_{i,t}$, $ES_{i,t}$ and $BV_{i,t}$ are defined in the above equation 7; $SHDA_{i,t}$ an indicator variable equal to 1 if EM via short-term discretionary accruals; 0 otherwise; $LGDA_{i,t}$ indicator variables equal to 1 if EM via long-term discretionary accruals; 0 otherwise; $ES_{i,t} * SHDA_{i,t}$ an interaction term that includes SHDA as a dummy variable which equal to 1 if EM via short-term discretionary accruals; 0 otherwise and ES measured as mentioned above; $BV_{i,t} * SHDA_{i,t}$ an interaction term that includes SHDA as a dummy variable which equal to 1 if EM via short-term discretionary accruals; 0 otherwise and BV measured as mentioned above; $ES_{i,t} * LGDA_{i,t}$ an interaction term that includes LGDA as a dummy variable which equal to 1 if EM via long-term discretionary accruals; 0 otherwise and ES measured as mentioned above; $BV_{i,t} * LGDA_{i,t}$ an interaction term that includes LGDA as a dummy variable which equal to 1 if EM via long-term discretionary accruals; 0 otherwise and BV measured as mentioned above.

5.4. Descriptive statistics

Table 2 presents descriptive statistics for the employed variables in this study for a sample of 570 observations. The descriptive statistics of Table 2 Panel B indicates variances in the main variables among the categories where EM firms demonstrate lower SP, ES per share, and BV with means (0.514, -0.003, 0.302, respectively) compared to No EM firms with means (1.056, 0.021, 0.514, respectively). This suggests that firms engage in EM present poor performance compared to No EM firms. Accordingly, the market could read accruals' employment as EM relatively than signalling the market if the low share price is denoted. Furthermore, Table 2 Panel C indicates that lower SP, ES, and BV belong to firms that manage earnings over long-term accruals with means (0.528, -0.003, 0.357, respectively). This argues that EM via short-term discretionary accruals is a common way to manage earnings in firms.

Table 3 presents the Pearson correlation matrix for the share price as a dependent variable and all the rest of the independent variables of ES and BV. The correlation is applied among the full sample, EM and No EM firms, and EM via SHDA sample, indicating various effects of SHDA on the correlation. However, firms that manage earnings using SHDA only present a higher correlation of SP with ES (37%) than SP with BV (33%) compared to firms with No EM activities. These results indicate that manage earnings through SHDA decrease the value relevance. On the other hand, firms that manage earnings via LGDA only demonstrate a high correlation of SP with BV compared to ES (53%, 46%, respectively) compared to firms with No EM activities.

Table 3. Pearson Correlation of Earnings and Book Value with Share Price

Sample category	Correlation with Share Price	
	ES	BV
All firms	0.417***	0.460***
No EM firms	0.476***	0.459***
EM firms	0.315***	0.488***
Short-term discretionary accruals EM	0.371***	0.337***
Long-term discretionary accruals EM	0.462***	0.537***

*, **, *** Significant at 10%, 5%, 1%, respectively.

Table 4. Earning's Value Relevance and Book Value

	Full Sample
ES	4.336 (2.97)***
BV	1.448 (3.64)***
Adj R²	0.477

*, **, *** Significant at 10%, 5%, 1%, respectively.

Table 5. Impact of Short- and Long-term Discretionary Accruals Earnings Management on the Value Relevance of Earnings and Book Value

	Full Sample
SHDA	0.114 (1.08)
LGDA	-0.338 (-1.81)*
ES	4.884 (2.62)**
ES*SHDA	-2.336 (-1.41)
ES*LGDA	-2.88 (-3.18)***
BV	0.867 (3.68)***
BV*SHDA	-0.115 (-1.22)
BV*LGDA	0.889 (2.89)***
Adj R²	0.317
Prob. F-stat	0.000

*, **, *** Significant at 10%, 5%, 1%, respectively.

6. Empirical results and discussion

For the estimation of the regression between dependent and independent variables, the fixed-effect model applies. The fixed effect model will eliminate the heteroscedasticity problem and cross-sectional dependencies. The results of the Hausmann test indicate that the fixed-effect cross-section model is more suitable. Hypothesis one is examined using the anticipated coefficients from model 1. The expected coefficients from model 1 are utilized to test Hypothesis 1, while the predicted coefficients from model 2 are subject to a Wald test and used to test Hypothesis 2.

6.1. Value relevance of earnings

Table 4 list the mean coefficient estimates resulting from model 1 regression and utilized to test the first hypothesis. ES and BV coefficients calculations are significant at 0.01 level and positive ($t = 2.97, 3.64$, respectively). This result underscores that ES and BV value relevance in the study samples, aligning with previous scientific studies (Oraby, 2017; Whelan and McNamara, 2004; Collins et al., 1997).

6.2. Estimating the Value Relevance of Earnings Management over Short-term and Long-term Discretionary Accruals

The findings of the fixed-effect model for the entire sample are illustrated in Table 5. LGDA coefficient is significant and negative at 10% for the full sample ($t = -1.81$). This outcome is an indication that the EM source is value relevant despite not interacting with other variables. Besides, the negative sign describes the lower share price of companies engaging in this EM practise, which aligns with the study's descriptive statistics. The outcomes match the first model's estimation and confirm the significant market response toward ES by 4.884 on the 0.05 level and positively ($t = 2.62$). $ES*LGDA$ is the interaction term that describes the effect of managed earning through LGDA on earnings. The results point out a decrease in market response by -2.88 towards the ES, with the coefficient being significant at the 0.01 level and negative ($t = -3.18$).

Conversely, SHDA earnings management does not influence the ES value relevance. This finding is harmonious with previous research. The results confirm a positive and significant market response to the BV at the 0.01 level ($t = 3.68$). Although to obtain the BV market response for practising EM through LGDA, the interaction term ($BV*LGDA$) is utilized. A significant coefficient of 0.889 at the 0.01 level ($t = 2.89$) shows that market response expands towards the BV to 0.889. Therefore, when firms use LGDA to manage earnings, they respond by enhancing their BV. However, the interaction term ($BV*SHDA$) is insignificant, demonstrating that SHDA earnings management activities do not influence BV's value relevance. This outcome is compatible with prior studies. Overall, the results indicate that SHDA earnings management does not impact the value relevance of ES and BV. Conversely, both variables' significant positive impact occurs when firms use LGDA to manage earnings.

In the study, the Wald test is used to verify the coefficient estimates. The study's Null Hypothesis 2 declares that short-term and long-term coefficients have no difference. (1) Hypothesis 2 is satisfied by two conditions. The EM earnings interaction coefficient is more significant via LGDA compared to SHDA. (2) The book value interaction coefficient is more significant via LGDA compared to SHDA. Table 6 lists the Wald test findings. Except for 2008, the join restriction's Wald test is notable for the full sample and each year. This outcome symbolizes that EM through LGDA has a more significant impact on the value relevance of earnings and BV compared to EM through SHDA.

7. Summary and conclusion

This study investigated whether Saudi Arabia firms' practice of EM impacts their book value and the value relevance of earnings. This study hypothesises that Saudi Arabia firms practising EM over long-term discretionary accruals are highly likely to influence a BV and the value relevance of earnings than SHDA. The finding of the study confirms that firms included in the sample have value relevance. Moreover, coherent with the view that a manager's EM activities affect a firm's value

Table 6. Wald Test

$$H2_0: \phi_4 EP_{i,t} SHDA_{i,t} = \phi_5 EP_{i,t} LGDA_{i,t}, \phi_7 BV_{i,t} SHDA_{i,t} = \phi_8 BV_{i,t} LGDA_{i,t}$$

$$H2_1: \phi_4 EP_{i,t} SHDA_{i,t} > \phi_5 EP_{i,t} LGDA_{i,t}, \phi_7 BV_{i,t} SHDA_{i,t} < \phi_8 BV_{i,t} LGDA_{i,t}$$

	χ^2
Full	42.09***
2004	16.29***
2005	6.11**
2006	21.04***
2007	32.62***
2008	2.66

*, **, *** Significant at 10%, 5%, 1%, respectively.

relevance, the outcome also points that, on the one hand, firms use long-term discretionary accruals to manage to earn, affecting the value relevance of ES negatively.

In contrast, SHDA earnings management has no impact on the value relevance of ES and BV. Generally, stakeholders are likely to recognize the decreasing reliability of earnings and consequently focus on BV for accounting information. The observed reduction of earnings reliability and the reporting quality could impact investors' beliefs and valuations, thereby shaping the firm's investment decisions, affecting the stock price and returns. Undoubtedly, the firms' stock price provides feedback into the company's investment choices (Gao, 2010). Besides, in acknowledging the impact of EM activities on the value relevance of earnings, it is essential to have a study that benchmarks the transparency of financial information among Middle East companies and the emerging market.

This study has several limitations, among which are the following: the focus of the research on financial firms located in Saudi Arabia; other developing countries may experience challenges with generalization because differences exist in a variety of economic, legal, and institutional environments. Also, the focus of this study was made only on BV and earnings. Implications for future research involve the emphasis on the value relevance of such accounting information as environmental performance, BV, corporate disclosure, and complex income statement, other than earnings. Future research should focus on developing countries with a variety of economic, legal, ownership, and institutional environments. The research of the value relevance of accounting information may be conducted in a different setting.

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Notes

1. "Saudi stock market is unique, in that short selling and options are not available, which prevents investors from benefiting from downtrends, even if expected". [www.tadawul.com.sa]
2. The book value of all traded corporate stocks in Saudi Stock Exchange is 10 Saudi Riyal (SAR).

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